

been enclosed in addition to a corrected substitute page 2 to be made of record in the present application.

**IN THE CLAIMS:**

Please cancel originally filed claims 1-120, replacing them with new claims 121-

140.

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1           --121. (New) A method of visually detecting an analyte-recognition moiety  
2 complex formed by an interaction between an analyte and a recognition moiety for said analyte  
3 by transducing said interaction to an organic mesogenic layer, said method comprising:

4           (a) interacting said analyte with a patterned surface comprising said recognition  
5 moiety, thereby forming an analyte-recognition moiety complex, said surface comprising:

6                 (i) a substrate;  
7                 (ii) a self-assembled monolayer bound to said substrate; and  
8                 (iii) said recognition moiety bound to said self-assembled monolayer;

9           (b) contacting said analyte-recognition moiety complex with said organic  
10 mesogenic layer, thereby anchoring said organic mesogenic layer onto said self-assembled  
11 monolayer and causing at least a portion of a plurality of mesogens proximate to said recognition  
12 moiety to detectably switch from a first orientation to a second orientation, thereby transducing  
13 said interaction to said mesogenic layer, said transducing causing said mesogenic layer to  
14 register a visually detectable feature; and  
15           (c) visually detecting said feature.

1           122. (New) The method according to claim 121, wherein said patterned surface  
2 comprises a patterned self-assembled monolayer.

1           123. (New) The method according to claim 121, wherein said patterned surface  
2 comprises a patterned substrate.

1           124. The method according to claim 121, wherein said patterned surface is  
2 produced by a method which is a member selected from the group consisting of grooving,  
3 photolithography, photoetching, chemical etching, mechanical etching, microcontact printing and  
4 combinations thereof.

1               125. (New) The method according to claim 121, wherein said patterned surface  
2 comprises features having a size of from about 1 micrometer to about 1 millimeter.

1               126. (New) The method according to claim 125, wherein said patterned surface  
2 comprises features having a size of from about 200 nanometers to about 10 micrometers.

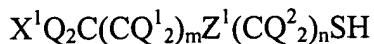
1               127. (New) The method according to claim 121, wherein said patterned surface  
2 comprises at least one feature which is a member selected from the group consisting of wells,  
3 enclosures, partitions, recesses, inlets, outlets, channels, troughs, diffraction gratings and  
4 combinations thereof.

1               128. (New) The method according to claim 127, wherein said at least one  
2 feature is a plurality of wells, wherein each member of said plurality of wells is fluidically  
3 isolated from the other members of said plurality of wells.

1               129. (New) The method according to claim 127, wherein each member of said  
2 plurality of wells comprises a depression and at least one border, wherein said border extends  
3 vertically above said depression and said border comprises a compound which is a member  
4 selected from the group consisting of hydrophobic compounds, hydrophilic compounds and  
charged compounds.

1               130. (New) The method according to claim 121, wherein said patterned surface  
2 anchors said mesogenic layer.

1               131. (New) The method according to claim 121, wherein said self-assembled  
2 monolayer is formed from:



3               wherein,

5                $X^1$  is a member selected from the group consisting of H, halogen and recognition  
6               moieties;

7               Q,  $Q^1$  and  $Q^2$  are independently members selected from the group consisting of H  
8               and halogen;

9           Z<sup>1</sup> is a member selected from the group consisting of —CQ<sub>2</sub>—, —CQ<sup>1</sup><sub>2</sub>—,  
10           —CQ<sup>2</sup><sub>2</sub>—, —O—, —S—, —NR<sup>4</sup>—, —C(O)NR<sup>4</sup> and R<sup>4</sup>NC(O)—,  
11           in which;

12           R<sup>4</sup> is a member selected from the group consisting of H, alkyl, substituted  
13           alkyl, aryl, substituted aryl, heteroaryl and heterocyclic groups;  
14           m is a number between 0 and 40; and

15           n is a number between 0 and 40.

1           132. (New) The method according to claim 121, wherein said recognition  
2           moiety comprises a member selected from the group consisting of organic functional groups,  
3           metal chelates, organometallic compounds and combinations thereof.

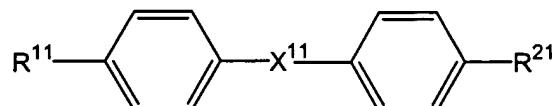
1           133. (New) The method according to claim 132, wherein said organic  
2           functional group is a member selected from the group consisting of amines, carboxylic acids,  
3           drugs, chelating agents, crown ethers, cyclodextrins and combinations thereof.

1           134. (New) The method according to claim 132, wherein said recognition  
2           moiety is biotin.

1           135. (New) The method according to claim 121, wherein said recognition  
2           moiety is a biomolecule.

1           136. (New) The method according to claim 135, wherein said biomolecule is a  
2           member selected from the group consisting of antibodies, nucleic acids, peptides, enzymes and  
3           receptors.

1           137. (New) The method according to claim 121, wherein said mesogenic layer  
2           comprises:



4           wherein,

5 R<sup>11</sup> and R<sup>21</sup> are members independently selected from the group consisting of  
6 alkyl groups, lower alkyl, substituted alkyl groups, aryl groups, acyl groups, halogens, hydroxy,  
7 cyano, amino, alkoxy, alkylamino, acylamino, thioamido, acyloxy, aryloxy, aryloxyalkyl,  
8 mercapto, thia, aza, oxo, both saturated and unsaturated cyclic hydrocarbons, heterocycles,  
9 arylalkyl, substituted aryl, alkylhalo, acylamino, mercapto, substituted arylalkyl, heteroaryl,  
10 heteroarylalkyl, substituted heteroaryl, substituted heteroarylalkyl, substituted heterocyclic and  
11 heterocyclicalkyl; and

$X^{11}$  is a member selected from the group consisting of  $\text{—C}=\text{N}\text{—}$ ,  $\text{—N}=\text{N(O)}\text{—}$ ,  $\text{—C}=\text{N(O)}\text{—}$ ,  $\text{—HC}=\text{CH}\text{—}$ ,  $\text{—C}\equiv\text{C}\text{—}$  and  $\text{—OC(O)}\text{—}$

138. (New) The method according to claim 123, wherein said visually detecting detects a change in reflectance, transmission, absorbance, dispersion, diffraction, polarization and combinations thereof, of light impinging on said plurality of mesogens.

139. (New) The method according to claim 121, wherein said mesogenic layer comprises a polymeric mesogen.

140. (New) The method according to claim 123, wherein said patterned substrate is a member selected from a rubbed glass substrate and a rubbed organic polymer substrate.--

**REMARKS**

## In the Specification

The Specification has been amended to correct typographical errors and to bring the definitions of certain organic groups into harmony with the claims as filed. Each of these changes is briefly explained below. No new matter is added by any of these amendments.

Amendment 1 is a correction of a typographical error. Support for the addition of the value “200” is found at page 70, line 16.

During review of this application, it was noted that, as presently defined, certain of the definitions for art-recognized organic groups were not in harmony with the claims as filed. The claims specifically noted include claims 39 and 41 (reciting the identity of certain R<sup>1</sup> groups), and 46 and 48 (reciting the identity of certain R<sup>2</sup> groups). In each of these claims and the broader claims from which they depend (*i.e.*, 36 and 43, respectively) R<sup>1</sup> and R<sup>2</sup> are defined as groups linking Si to